

REMARKS

Claim has been amended. Claims 3, 4, 11 and 17 have been cancelled. Claims 20-24 are newly presented. No new matter is added.

Rejections under 35 U.S.C. §102

Claims 1-19 have been rejected as being anticipated by US 5,265,115 by Amano.

This ground of rejection is respectfully traversed.

In one embodiment of the present invention, as set forth in claim 1, a diode pumped, intracavity doubled laser has at least two resonator mirrors that define a resonator cavity. A Nd:YVO₄ laser crystal and an LBO doubling crystal are positioned in the resonator cavity. A diode pump source supplies a pump beam to the laser crystal and produces an intracavity beam with at least one axial mode incident on the doubling crystal to produce a frequency doubled output beam. The frequency doubled output beam has an output power of at least 1 watt and an optical efficiency of at least 20%. The diode pump source is configured to be coupled to a power supply.

U.S. Patent No. 5,265,115 (hereafter the " '115 Patent") is directed to a laser system where the intensity of the output beam is substantially constant by controlling the intensity of the excitation laser beam, regardless of a variation of oscillation conditions. A Nd:YAG rod gain medium is mounted with a laser resonator on a thermal conductive support, together with an optical function element, and are accommodated in an adiabatic housing fixed on a heat sink. A thermal control block is brought into contact with both the thermal conductive support and the heat sink to radiate heat through the heat sink. The solid-state laser medium and a wavelength conversion element are kept at the predetermined temperature. A pump beam is produced by a diode source. A photo detector is provided with feedback control to control the intensity of the diode pump beam.

The '115 Patent does not teach nor suggest a frequency doubled output beam with an output power of at least 1 watt with an optical efficiency of at least 20% using

the specific combination of a Nd:YVO4 gain medium and a LBO nonlinear crystal. Such an output beam is not inherent to the laser system of the '115 Patent, which relies on a feedback loop to control the intensity of the excitation source to keep the output intensity constant for a generic semiconductor pumped, frequency doubled laser. The '115 patent does not teach that the combination of a Nd:YVO4 laser crystal and an LBO doubling crystal with high efficiency performance as set forth in claim 1 and must use a feedback loop.

CONCLUSION

It is submitted that the present application is in form for allowance, and such action is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 08-1641 (Docket No. 18120-0231).

Respectfully submitted,

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